

CLAIMS

We claim:

1. A hybrid fuel cell system in which a fuel cell and an electricity storage device are connected via a voltage converter, wherein the voltage converter comprises a plurality of multi-phases, the system comprising a controller that changes the number of phases used by the voltage converter in accordance with a value equivalent to power passing through the voltage converter.

5 2. A hybrid fuel cell system in which a fuel cell and an electricity storage device are connected via a voltage converter, wherein the voltage converter comprises a plurality of phases, and the number of phases of operation can be changed in accordance with a value equivalent to an input/output conversion energy volume or 10 operation volume of the voltage converter.

15 3. The hybrid fuel cell system according to claim 1 or 2, wherein when the equivalent value is smaller than a predetermined value, the number of phases of operation is fewer than the number of phases of operation when the equivalent value is equal to or greater than the predetermined value.

20 4. The hybrid fuel cell system according to claim 1 or 2, wherein

the voltage converter switches between multi-phase operation in which operation is in a plurality of phases and single phase operation in which operation is in 25 single phase, and

during multi-phase operation when the equivalent value becomes smaller than a first value, operation is switched to single phase operation, and

during single phase operation when the equivalent value is larger than a second value that is larger than the first value, operation is switched to multi-phase 25 operation.

5. The hybrid fuel cell system according to any one of claims 1 through 3, wherein the voltage converter is a three phase bridge type converter which is controlled to change the number of phases of operation in accordance with the equivalent value.

6. A method of controlling voltage conversion of a hybrid fuel cell system in 30 which a fuel cell and an electricity storage device are connected via a voltage converter, comprising:

when the voltage converter is provided with a plurality of phases, measuring a value equivalent to power passing through the voltage converter; and

changing the number of phases used in accordance with the measured

equivalent value.

7. The method of controlling voltage conversion of a hybrid fuel cell system according to claim 6, wherein when the equivalent value is smaller than a predetermined value, the number of phases of operation for use is fewer than the 5 number of phases of operation when the equivalent value is equal to or greater than the predetermined value.

8. The method of controlling voltage conversion of a hybrid fuel cell system according to claim 6 or 7, wherein, when the voltage converter can switch between multi-phase operation in which operation is in a plurality of phases and single phase 10 operation in which operation is in single phase, operation is switched to the single phase operation during multi-phase operation when the equivalent value becomes smaller than a first value, and operation is switched to the multi-phase operation during single phase operation when the equivalent value is larger than a second value that is larger than the first value.